WHAT IS CLAIMED IS:

1. A system for controlling the acoustic signature of a device, comprising:
a processor operable to:
receive information regarding the operating condition of the device;
determine the current acoustic level of the device based on the current operating condition information;
generate a signal indicating the acoustic level; and
generate at least one signal that can be used to control the operating condition of the device to achieve a desired acoustic level.

2. The system according to Claim 1 wherein the processor is further operable to determine whether the level of the device acoustic signature is above the desired level; and determine the rate of increase in the acoustic level.

3. The system according to Claim 1 wherein the processor is further operable to generate at least one advisory cue based on the rate of increase of the acoustic level.

4. The system according to Claim 1 wherein the processor is further operable to detect selection of an option to limit maneuvers of the device.

5. The system according to Claim 1 wherein the processor is further operable to display symbols indicating changes to the operating condition than can be made to control the current acoustic level.

6. The system according to Claim 1 wherein the processor is further operable to determine the amount of time the acoustic level has exceeded the desired acoustic level.

7. The system according to Claim 6 wherein the processor is further operable to issue alert cues indicating urgency to reduce the acoustic level based on the amount of time and the extent to which the acoustic level has exceeded the desired acoustic level.

8. The system according to Claim 1 wherein the processor is further operable to generate signals to automatically control operating conditions to reduce and maintain the acoustic level within the desired acoustic level.

9. The system according to Claim 1 wherein the processor is further operable to generate signals to indicate at least one previous value of the acoustic level.

10. The system according to Claim 1 wherein the processor is further operable to generate signals to indicate at least one predicted value of the acoustic level based on expected maneuvers and operating conditions.

11. The system according to Claim 1 wherein the processor is further operable to generate signals to indicate an alternate navigation route that requires less maneuvering to reduce variation in the acoustic level from the desired acoustic level.

12. The system according to Claim 1 wherein the processor is further operable to generate signals to allow a crewmember to select a feature on a display and generate information regarding the acoustic level associated with the selected feature.

13. The system according to Claim 1 wherein the processor is further operable to generate an aural cue based on the acoustic level.

14. The system according to Claim 1 wherein the processor is further operable to generate a tactile cue based on the acoustic level.

15. The system according to Claim 1 wherein the processor is further operable to generate a color-coded visual cue based on the acoustic level.

16. The system according to Claim 1 wherein the processor is further configured to generate a cue indicating the strength of the acoustic level based on a combination of Mach number, altitude, device weight and acceleration.

17. The system according to Claim 1 wherein the processor is further configured to generate a contour line indicating the pressure level of the shock wave acoustic signature.

18. A method for providing information to control the acoustic signature of an aircraft, comprising:

determining the current acoustic level of the aircraft based on current flight condition information;

generating a signal indicating the acoustic level; and

generating information that can be used by a crewmember and an automated flight control system to control the flight condition of the aircraft to remain at or below a desired acoustic level.

19. The method according to Claim 18 further comprising determining whether the acoustic level is above the desired level; and determine the rate of increase in the acoustic level.

20. The method according to Claim 18 further comprising generating at least one cue based on the rate of increase of the acoustic level.

21. The method according to Claim 18 further comprising detecting selection of an option to limit maneuvers of the aircraft.

22. The method according to Claim 18 further comprising displaying symbols indicating changes to the flight condition than can be made to control the current acoustic level, wherein the changes include at least one of the group of: reducing acceleration, reducing velocity, and reducing bank angle.

23. The method according to Claim 18 further comprising determining the amount of time the acoustic level has exceeded the desired acoustic level.

24. The method according to Claim 23 further comprising issuing alert cues indicating urgency to reduce the acoustic level based on the amount of time and the extent to which the acoustic level has exceeded the desired acoustic level.

25. The method according to Claim 24 further comprising generating signals to automatically control flight conditions to reduce and maintain the acoustic level within the desired acoustic level.

26. The method according to Claim 25 further comprising generating signals to indicate a history of the aircraft's acoustic level.

27. The method according to Claim 18 further comprising indicating at least one predicted value of the acoustic level based on expected maneuvers and flight conditions.

28. The method according to Claim 18 further comprising generating signals to indicate an alternate navigation route that requires less maneuvering to reduce variation in the acoustic level from the desired acoustic level.

29. The method according to Claim 18 further comprising generating signals to allow a crewmember to select a feature on a display and generate information regarding the acoustic level associated with the selected feature.

30. The method according to Claim 18 further comprising generating an aural cue based on the acoustic level.

31. The method according to Claim 18 further comprising generating a tactile cue based on the acoustic level.

32. The method according to Claim 18 further comprising generating a visual cue based on the acoustic level.

33. The method according to Claim 18 further comprising varying the size of the cue based on the acoustic level.

34. The method according to Claim 18 further comprising varying the shape of the cue based on the acoustic level.

35. An aircraft comprising:

a sensor system configured to provide information regarding the current flight condition of the aircraft;

a processor configured to:

determine the acoustic level of aircraft noise or shock wave generated by the aircraft during flight based on the information from the sensor system; and

generate cues to indicate the current and expected acoustic levels based on planned maneuvers of the aircraft along a route.

36. The aircraft according to Claim 35 wherein the processor is further configured to determine whether the acoustic level is above the desired level; and determine the rate of increase and the extent of the acoustic level.

37. The aircraft according to Claim 35 wherein the processor is further configured to generate at least one cue based on the rate of increase and the magnitude of the acoustic level.

38. The aircraft according to Claim 35 wherein the processor is further configured to detect selection of an option to limit maneuvers of the aircraft.

39. The aircraft according to Claim 35 wherein the processor is further configured to display symbols indicating changes to the flight condition that can be made to control the current acoustic level.

40. The aircraft according to Claim 35 wherein the processor is further configured to determine the amount of time the acoustic level has exceeded the desired acoustic level.

41. The aircraft according to Claim 40 wherein the processor is further configured to issue alert cues indicating urgency to reduce the acoustic level based on the amount of time and the magnitude of the acoustic level has exceeded the desired acoustic level.

42. The aircraft according to Claim 35 wherein the processor is further configured to generate signals to automatically control flight conditions to reduce and maintain the acoustic level within the desired acoustic level.

43. The aircraft according to Claim 35 wherein the processor is further configured to generate signals to indicate at least one previous value of the acoustic level.

44. The aircraft according to Claim 35 wherein the processor is further configured to generate signals to indicate at least one predicted value of the acoustic level based on expected maneuvers and flight conditions.

45. The aircraft according to Claim 35 wherein the processor is further configured to generate signals to indicate an alternate navigation route around densely populated areas.

46. The aircraft according to Claim 35 wherein the processor is further configured to generate signals to allow a crewmember to select a feature on a display and generate information regarding the acoustic level associated with the selected feature.

47. The aircraft according to Claim 35 wherein the processor further comprises a terrain map database, and is further configured to display a map of the terrain in the vicinity of the aircraft and cues overlaying the map indicating the footprint of the aircraft's acoustic signature on the terrain map.

48. The aircraft according to Claim 35 wherein the processor is further configured to generate a tactile cue based on the acoustic level.

49. The aircraft according to Claim 35 wherein the processor is further configured to generate a color-coded visual cue based on the acoustic level, and to vary the color of the cue based on the acoustic level.

50. The aircraft according to Claim 35 wherein the processor is further configured to generate a cue to indicate the acoustic level and to vary the cue based on the acoustic level.

51. The aircraft according to Claim 35 wherein the processor is further configured to determine the acoustic level using multi-dimensional data tables based on Mach number, altitude, aircraft weight and acceleration, and bank angle of the aircraft.

52. The aircraft according to Claim 35 wherein the processor is further configured to determine the acoustic level based on the land mass the aircraft is flying over, and atmospheric conditions.

53. The aircraft according to Claim 35 wherein the processor is further configured to generate a cue indicating the strength of the acoustic level based on a combination of Mach number, altitude, aircraft weight and acceleration.

54. The aircraft according to Claim 35 wherein the processor is further configured to generate a contour line indicating the pressure level of the sonic boom.